



Unit 4 Lesson 1

Equation Match Recording Sheet

- Cut apart **Equation Match Card Set 1**.
- Match the equation with the verbal description and attach the cards to the table.
- Complete the tables in the Table column.
- Cut apart **Equation Match Card Set 2**.
- Match the graph with the other representations and attach the cards to the table.
- Label each graph.

| Verbal Description | Equation | Table | Graph | | | | | | | | | | | | |
|---|----------------|--|-------|-----|-----|--|---|--|-----|--|---|--|-----|--|--|
| Hal's Hauling rents trailers by the hour. Hal charges \$9.00 per hour and a connection fee of \$30. What equation can be used to determine c , the total cost to rent a trailer for h hours? | | <table><tr><th>h</th><th>c</th></tr><tr><td>0.5</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>1.5</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>2.5</td><td></td></tr></table> | h | c | 0.5 | | 1 | | 1.5 | | 2 | | 2.5 | | |
| h | c | | | | | | | | | | | | | | |
| 0.5 | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 1.5 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 2.5 | | | | | | | | | | | | | | | |
| | $c = 30h + 60$ | <table><tr><th>h</th><th>c</th></tr><tr><td>0.5</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>1.5</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>2.5</td><td></td></tr></table> | h | c | 0.5 | | 1 | | 1.5 | | 2 | | 2.5 | | |
| h | c | | | | | | | | | | | | | | |
| 0.5 | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 1.5 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 2.5 | | | | | | | | | | | | | | | |
| Peter Piper Plumbing charges \$7.50 per quarter hour for labor in addition to a service call fee of \$9. What equation can be used to determine c , the total cost for a plumbing job that takes h hours? | | <table><tr><th>h</th><th>c</th></tr><tr><td>0.5</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>1.5</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>2.5</td><td></td></tr></table> | h | c | 0.5 | | 1 | | 1.5 | | 2 | | 2.5 | | |
| h | c | | | | | | | | | | | | | | |
| 0.5 | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 1.5 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 2.5 | | | | | | | | | | | | | | | |
| | $c = 60h + 30$ | <table><tr><th>h</th><th>c</th></tr><tr><td>0.5</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>1.5</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>2.5</td><td></td></tr></table> | h | c | 0.5 | | 1 | | 1.5 | | 2 | | 2.5 | | |
| h | c | | | | | | | | | | | | | | |
| 0.5 | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 1.5 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 2.5 | | | | | | | | | | | | | | | |



What's the Cost?

Due to rising costs Hal's Hauling, Fix It Fred, Peter Piper Plumbing, and Cable Connection increased their rates as shown in the table below.

| Hal's Hauling | Fix It Fred | Peter Piper Plumbing | Cable Connection |
|--|---|---|--|
| Hal's Hauling rents trailers by the hour. Hal charges \$10.00 per hour and a connection fee of \$35. | Fix It Fred repairs the transmissions of old cars. He charges a parts fee of \$75 in addition to a \$16.00 labor fee for every half hour of work. | Peter Piper Plumbing charges \$7.50 per quarter hour for labor in addition to a service call fee of \$20. | Cable Connection installs satellites for dish television. They charge \$60 per hour for labor and an equipment fee of \$90 per installation. |

- 1 What equation can be used to determine c , the total cost to rent a trailer from Hal's Hauling for h hours?
- 2 Find the total cost for renting a trailer from Hal's Hauling for 10 hours.
- 3 What equation can be used to determine c , the total cost to repair a transmission by Fix It Fred for h hours?
- 4 Find the total cost for a transmission repair by Fix It Fred that takes 13 hours.
- 5 What equation can be used to determine c , the total cost for plumbing repairs by Peter Piper Plumbing for h hours?
- 6 Find the total cost for a plumbing repair job by Peter Piper Plumbing that takes 4 hours.
- 7 What equation can be used to determine c , the total cost to install a satellite dish by Cable Connection for h hours?
- 8 Find the total cost for installing a satellite dish by Cable Connection that takes 3 hours.



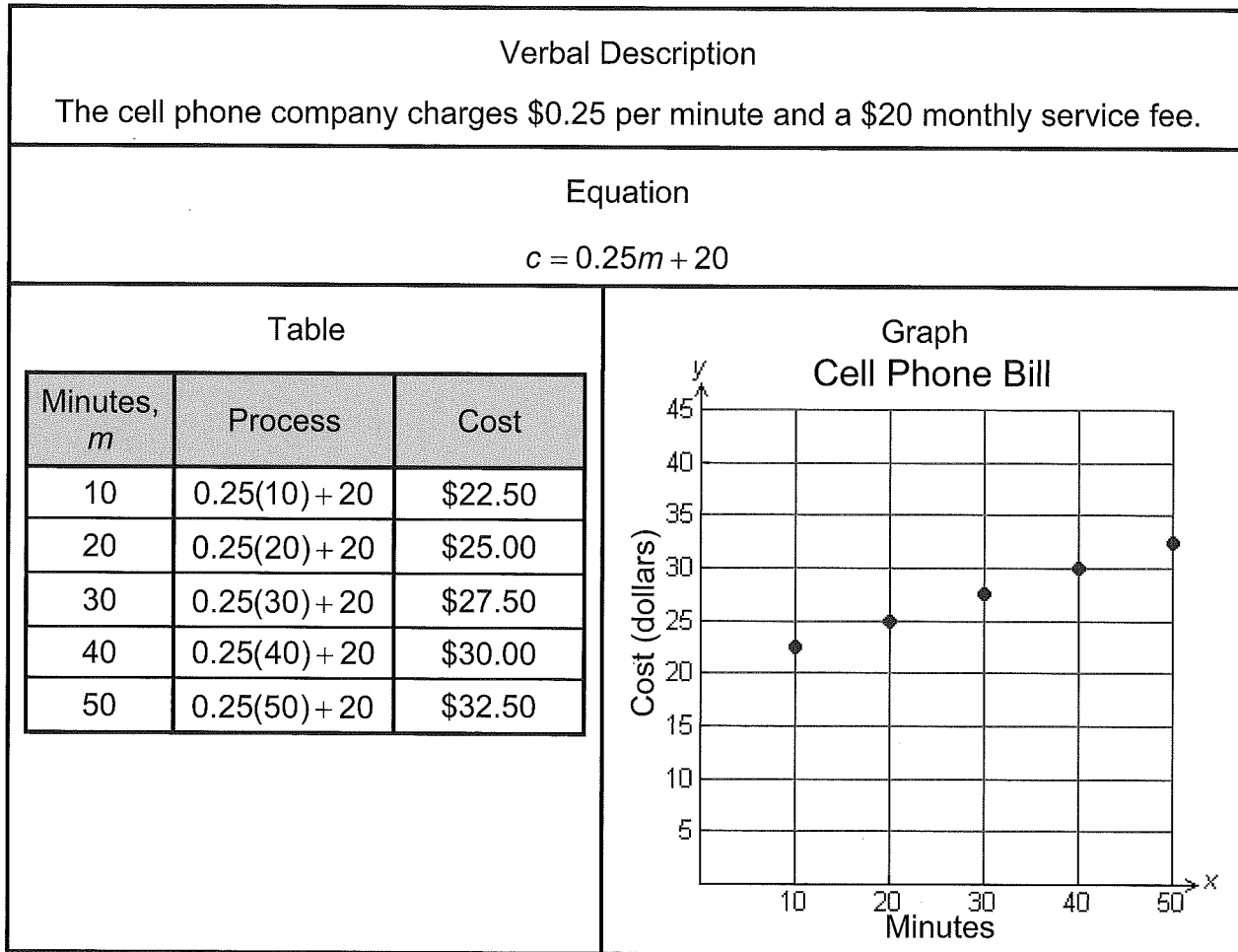
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Independent Practice

Data can be represented in different forms: a table, a graph, a verbal description or an equation.

Example: Christopher determined that the equation $c = 0.25m + 20$ can be used to find c , the monthly charges on his cell phone bill for m minutes used.

Christopher can represent the equation $c = 0.25m + 20$ in the following ways:



Find the total monthly charge for 240 minutes of cell phone use.

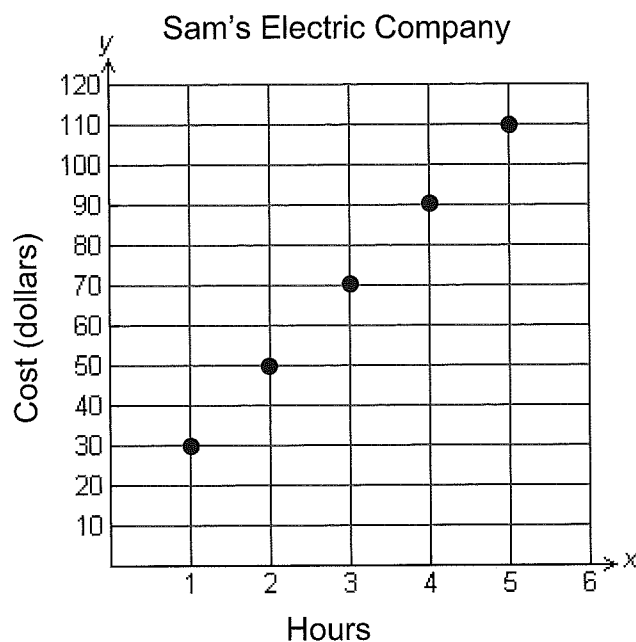
Christopher can use any of the above representations to find the total charges.

- The graph can be used by extending the x-axis and y-axis.
- The equation can be used by replacing m with 240.
$$c = 0.25m + 20$$
$$c = 0.25(240) + 20$$
$$c = 60 + 20$$
$$c = 80$$
- The table can be extended to 240 minutes.

Therefore, Christopher's monthly bill will be \$80.



Use the graph below to answer questions 1 – 3.



- 1 Find the total cost for an electrical repair by Sam's Electric Company that takes $4\frac{1}{2}$ hours.
- 2 How many hours of work can be done for \$70?
- 3 Complete the table to help determine the total cost of repairs done by Sam's Electric Company for h hours.

Sam's Electric Company

| Hours, h | Cost (dollars) |
|------------|----------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| h | |

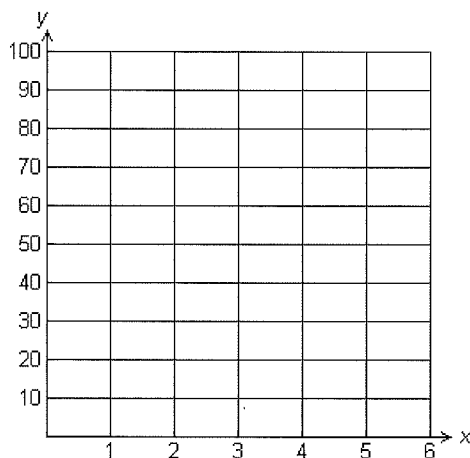


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Use the verbal description below to answer questions 4 – 6.

Rent_A_Costume.com rents costumes by the week. They charge \$25.00 per week and a cleaning fee of \$15.00.

- 4 What equation can be used to determine c , the total cost for renting a costume at Rent_A_Costume.com for w weeks?
- 5 Find the total cost for renting a costume from Rent_A_Costume.com for 3 weeks.
- 6 Create a graph that represents the total cost, c , for renting a costume from Rent_A_Costume.com for w weeks.



Use the table below to answer questions 7 – 9.

| Miles, m | 100 | 150 | 200 | 250 | 300 |
|--------------|-----|-----|-----|-----|-----|
| Time (hours) | 2 | 3 | 4 | 5 | 6 |

- 7 What equation can be used to determine t , the total number of hours for m miles?
- 8 Find the total number of hours it would take to travel 675 miles.
- 9 Find the number of miles traveled in 7.25 hours.



Use the equation below to answer questions 10 – 12.

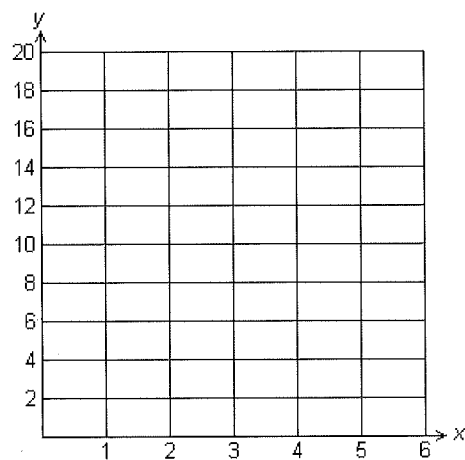
$$t = 2m + 4$$

10 Write a scenario that the given equation could be used to describe.

11 Find the value for t if m has a value of 16.

12 Complete the table and graph below for the given equation.

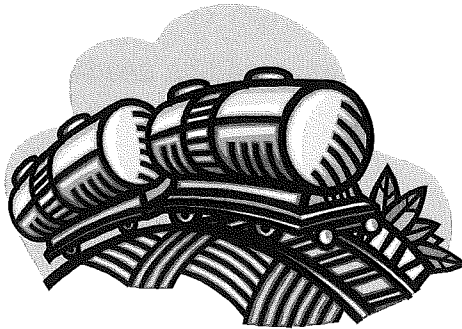
| m | t |
|-----|-----|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |





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Railroad Crossing



High-speed trains in Europe travel at an average speed of 150 miles per hour. A regular train has an average speed of 60 miles per hour. Over a period of $4\frac{1}{2}$ hours, how many more miles will the high-speed train travel than the regular train? Justify your answer. [$D = rt$]

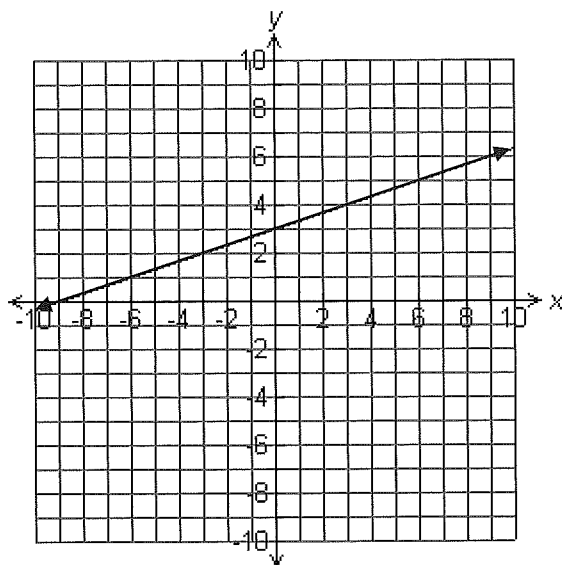
FOR TEACHER USE ONLY:

a. YES NO Student arrives at a correct solution?

| | 4 | 3 | 2 | 1 |
|-------------------------|---|---|---|---|
| b. Conceptual Knowledge | | | | |
| c. Procedural Knowledge | | | | |
| d. Communication | | | | |



- 1 The graph of the line $y = \frac{1}{3}x + 3$ is drawn on the coordinate grid below.



Which table of ordered pairs contains only points on this line?

A

| x | y |
|----|----|
| -6 | -1 |
| 0 | -3 |
| 3 | -4 |
| 6 | -9 |

C

| x | y |
|---|---|
| 3 | 4 |
| 4 | 5 |
| 5 | 6 |
| 6 | 7 |

B

| x | y |
|----|----|
| -1 | 6 |
| -3 | 0 |
| -4 | -3 |
| -9 | -6 |

D

| x | y |
|----|---|
| -3 | 2 |
| 0 | 3 |
| 3 | 4 |
| 9 | 6 |



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- 2 Ms. Williams is purchasing the materials she will need to make baby quilts. She will need to purchase a new pair of scissors that cost \$27.58. The fabric for each quilt costs \$29.70. If x represents the number of quilts Ms. Williams will sew, which equation can be used to find y , the amount in dollars spent by Ms. Williams?

- A $y = 6x + 27.58$
B $y = 29.7x + 27.58$
C $y = x + 27.58 + 29.70$
D $y = x + 29.7$

- 3 The table below shows the relationship between the number of hours, x , and the cost, y .

| Hours, x | Cost, y |
|------------|-----------|
| 1 | 5 |
| 2 | 7 |
| 3 | 9 |
| 4 | 11 |
| x | |

Which equation best represents the relationship?

- A $y = x + 3$
B $y = 2x - 3$
C $y = 2x$
D $y = 2x + 3$

- 4 The cost of Joseph's car repair, c , can be found using the equation $c = 6.5h + 45$, where h represents the number of hours needed to repair the car. Find the total cost for a car repair that took 5 hours.

- A \$370.00
B \$231.50
C \$77.50
D \$48.25